

September 19 - 25, 2003

<P>The Terra spacecraft is in nominal mode. All instruments are in Science Mode.</P>

<P>On Wednesday evening September 24, 2003, a large number of uncorrectable data blocks was discovered in the downlink from the Solid State Recorder (SSR) MODIS buffer. Early in the morning of Thursday, September 25, a similar number of uncorrectables was observed in the ASTER buffer. After analysis of the downlinked science data and subsequent diagnostic dumps conducted on September 25, 2003 (DOY 268), it was concluded that supersets 50 and 51 in the MODIS buffer and supersets 114 and 115 in the ASTER buffer could not properly record data, indicating potential failure of Printed Wire Assemblies (PWA) in the SSR Data Memory Unit (DMU) boards. Subsequent dumps after the initial discovery continued to show corrupted data from these supersets. These pairs of supersets are on two different Data Management Units (DMUs) within the Terra SSR.</P>

<P>The MODIS buffer anomaly occurred at approximately 7:10 p.m. on September 24 (267/2310z). The ASTER problem occurred at approximately 3:30 a.m. on September 25 (268/0730z). The spacecraft was at high latitudes at the time of the incidents, not in the SAA or in other regions of high charged particle flux.</P>

<P>Subsequent to the above described diagnostic activities, the SSR superset select and move procedure was used to move the two bad supersets out of the MODIS and ASTER SSR buffers. This enabled normal processing of MODIS and ASTER data to resume. Reallocation of buffer space or possible restoration of the four damaged supersets through SSR recycling is being evaluated as a potential solution. The Anomaly Investigation Team, led by the Terra Mission Director, includes the Terra Flight Operations Team and the Control & Data Handling Lead Engineer from the spacecraft manufacturer. This team is continuing to collect information relevant to these anomalies and will work to develop a fault tree and identify potential failure mechanisms. The SSR manufacturer has been contacted. The team is developing a detailed timeline of all spacecraft activities around the anomalies.</P>